

What is claimed is:

1. An aqueous alkaline solution for mineral supplementation,
which comprises bovine bones, cuttlefish bones, red
algae, an organic acid and purified water, wherein:

(a) the organic acid is at least one selected from the
group consisting of acetic acid, lactic acid and
citric acid;

(b) the content of the bovine bones, the cuttlefish
bones and the red algae is 2-10% by weight relative
to the weight of the aqueous solution; and

(c) the content of the organic acid is 2-10% by weight
relative to the weight of the aqueous solution.

2. A composition for the prevention and improvement of
osteoporosis, which comprises:

(a) the aqueous alkaline solution for mineral
supplementation as set forth in Claim 1;

(b) a medicinal plant;

(c) a yellow dried Alaska pollack;

(d) black beans;

(e) *Lentinus edodes*;

(f) casein phospeptide; and

(g) docosahexaenoic acid (DHA).

3. The composition of Claim 2, wherein the medicinal plant is selected from the group consisting of *Eucommiae Cortex*, *Cervi cornu*, *Dioscoreae Rhizoma*, *Crataegi Fructus*, *Poria cocos*, steamed *Rehmannia glutinosa*, *Acori Graminei Rhizoma*, *Astragali Radix*,
5 *Paeonia lactiflora Pallas*, *Cnidii Rhizoma*, *Angelicae Gigantis Radix*, *Glycyrrhiza* and a mixture thereof.

4. The composition of Claim 2, wherein the content of the yellow dried Alaska pollack is 0.1-20% by weight relative to the weight of the composition.

10 5. The composition of Claim 2, wherein the content of the black beans is 0.1-20% by weight relative to the weight of the composition.

15 6. The composition of Claim 2, wherein the content of the medicinal plant is 0.1-27.5% by weight relative to the weight of the composition.

7. The composition of Claim 2, wherein the content of the *Lentinus edodes* is 0.1-10% by weight relative to the weight of the composition.

20 8. The composition of Claim 2, wherein the content of the casein phosphopeptide is 0.1-1.2% by weight relative to the weight of the composition.

9. The composition of Claim 2, wherein the content of the docosahexaenoic acid (DHA) is 0.1-0.3% by weight relative to the weight of the composition.

10. A health food, which comprises the composition for the prevention and improvement of osteoporosis as set forth in Claim 2, as an active ingredient, wherein the formulation of the health food is a pill.

5 11. The health food of claim 10, wherein the medicinal plant is selected from the group consisting of *Eucommiae Cortex*, *Cervi cornu*, *Dioscoreae Rhizoma*, *Crataegi Fructus*, *Poria cocos*, steamed *Rehmannia glutinosa*, *Acori Graminei Rhizoma*, *Astragali Radix*, *Paeonia lactiflora Pallas*, *Cnidii Rhizoma*, *Angelicae Gigantis*
10 *Radix*, *Glycyrrhiza* and a mixture thereof.

12. The health food of claim 10, wherein the content of the yellow dried Alaska pollack is 0.1-20% by weight relative to the weight of the composition.

13. The health food of claim 10, wherein the content of the
15 black beans is 0.1-20% by weight relative to the weight of the composition.

14. The health food of claim 10, wherein the content of the medicinal plant is 0.1-27.5% by weight relative to the weight of the composition.

20 15. The health food of claim 10, wherein the content of the *Lentinus edodes* is 0.1-10% by weight relative to the weight of the composition.

16. The health food of claim 10, wherein the content of the casein phospeptide is 0.1-1.2% by weight relative to the weight of the composition.

17. The health food of claim 10, wherein the content of the
5 docosaehaenoic acid (DHA) is 0.1-0.3% by weight relative to the weight of the composition.

18. A preparing method of an aqueous alkaline solution for mineral supplementation, which comprises the steps of:

(a) pulverizing bovine bones, cuttlefish bones and red algae
10 to make powders;

(b) heating the powders at a temperature of 1,000-1,200 °C for 30 minutes to one hour;

(c) cooling the heated powders;

(d) adding purified water to the cooled powders to make a
15 solution, wherein the content of the powders is 2 - 10% by weight relative to the weight of the aqueous solution;

(e) adding an organic acid to the solution, wherein the content of the organic acid is 2 - 10% by weight relative to the weight of the aqueous solution;

20 (f) solubilizing the organic acid-containing solution in a pressurized extractor at a temperature of 120-150 °C for 20 minutes to one hour; and

(g) cooling and filtering the solubilized solution, wherein:

the organic acid is at least one selected from the group consisting of acetic acid, lactic acid and citric acid.

19. A composition for the prevention and improvement of osteoporosis, which comprises:

- 5 (a) the aqueous alkaline solution for mineral supplementation prepared by the method of Claim 18;
- (b) a medicinal plant;
- (c) a yellow dried Alaska pollack;
- (d) black beans;
- 10 (e) *Lentinus edodes*;
- (f) casein phospeptide; and
- (g) docosahexaenoic acid (DHA).

20. The composition of Claim 19, wherein the medicinal plant is selected from the group consisting of *Eucommiae Cortex*, *Cervi cornu*, *Dioscoreae Rhizoma*, *Crataegi Fructus*, *Poria cocos*, steamed *Rehmannia glutinosa*, *Acori Graminei Rhizoma*, *Astragali Radix*, *Paeonia lactiflora Pallas*, *Cnidii Rhizoma*, *Angelicae Gigantis Radix*, *Glycyrrhiza* and a mixture thereof.

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21. The composition of Claim 19, wherein the content of the yellow dried Alaska pollack is 0.1-20% by weight relative to the weight of the composition.

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22. The composition of Claim 19, wherein the content of the black beans is 0.1-20% by weight relative to the weight of the composition.

23. The composition of Claim 19, wherein the content of the medicinal plant is 0.1-27.5% by weight relative to the weight of the composition.

24. The composition of Claim 19, wherein the content of the
5 *Lentinus edodes* is 0.1-10% by weight relative to the weight of the composition.

25. The composition of Claim 19, wherein the content of the casein phospeptide is 0.1-1.2% by weight relative to the weight of the composition.

10 26. The composition of Claim 19, wherein the content of the docosahexaenoic acid (DHA) is 0.1-0.3% by weight relative to the weight of the composition.

27. A health food, which comprises the composition for the prevention and improvement of osteoporosis as set forth in Claim
15 19, as an active ingredient, wherein the formulation of the health food is a pill.

28. The health food of claim 27, wherein the medicinal plant is selected from the group consisting of *Eucommiae Cortex*, *Cervi cornu*, *Dioscoreae Rhizoma*, *Crataegi Fructus*, *Poria cocos*, steamed
20 *Rehmannia glutinosa*, *Acori Graminei Rhizoma*, *Astragali Radix*, *Paeonia lactiflora Pallas*, *Cnidii Rhizoma*, *Angelicae Gigantis Radix*, *Glycyrrhiza* and a mixture thereof.

29. The health food of claim 27, wherein the content of the yellow dried Alaska pollack is 0.1-20% by weight relative to the weight of the composition.

30. The health food of claim 27, wherein the content of the
5 black beans is 0.1-20% by weight relative to the weight of the composition.

31. The health food of claim 27, wherein the content of the medicinal plant is 0.1-27.5% by weight relative to the weight of the composition.

10 32. The health food of claim 27, wherein the content of the *Lentinus edodes* is 0.1-10% by weight relative to the weight of the composition.

15 33. The health food of claim 27, wherein the content of the casein phospeptide is 0.1-1.2% by weight relative to the weight of the composition.

34. The health food of claim 27, wherein the content of the docosaheanoic acid (DHA) is 0.1-0.3% by weight relative to the weight of the composition.